## <u>CLAIMS</u>

What is claimed is:

- 1 1. A method for depositing metal on a plating surface of an object immersed in an
- 2 electrolyte solution prior to bulk deposition on the horizontal surface of the plating
- 3 surface, the method comprises:
- 4 applying a voltage from an anode to the plating surface to enhance the
- 5 concentration of metal ions in the electrolyte solution that is contained in a feature on
- 6 the plating surface.
- 1 2. The method of claim 1, wherein during the method, the plating surface is immersed
- 2 within said electrolyte solution.
- 1 3. The method of claim 1, wherein the applying the voltage is sufficient to attract ions
- 2 to proximate the plating surface.
- 1 4. The method of claim 1, wherein the feature comprises at least one from the list of
- 2 trenches, contacts, and vias.
- 1 5. The method of claim 1, further comprising applying a current from the anode to the
- 2 plating surface to deposit metal from the metal ions in the feature, the current is applied
- 3 prior to the bulk deposition.
- 6. The method of claim 5, wherein the current is applied for a sufficient duration of fill
- 2 the feature.
- 7. The method of claim 6, wherein the features comprise a wall and a bottom, wherein
- 2 during the depositing the metal in the features, the deposition rate on the bottom is
- 3 greater than the deposition on the walls.
- 1 8. The method of claim 1, wherein following immersion the current (finite) is applied
- 2 for less than five seconds.

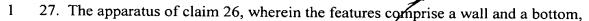


- 9. The method of claim 1, wherein the voltage is within the range of 2 to 10 volts.
- 1 10. The method of claim 9, wherein the voltage is 5 volts.
- 1 11. A computer readable medium that stores software that, when executed by a
- 2 processor, causes depositing metal on a plating surface of an object immersed in an
- 3 electrolyte solution prior to bulk deposition on the plating surface, the software
- 4 executed by the processor performs a method comprising.
- applying a voltage between an anode and the plating surface to enhance the
- 6 concentration of metal ions in the electrolyte solution that is contained in a feature on
- 7 the plating surface.
- 1 12. The computer readable medium of claim 11, further comprising applying a current
- 2 from the anode to the plating surface to deposit metal from the metal ions in the feature,
- 3 the current is applied prior to the bulk deposition,
- 1 13. The computer readable medium of claim 12, wherein the current is not sufficient to
- 2 shut off the throat of the trenches or vias
- 1 14. The computer readable medium of claim 12, wherein the current is performed for a
- 2 sufficient duration to fill the trenches or vias.
- 1 15. The computer readable medium of claim 12, wherein the features comprise a wall
- 2 and a bottom, wherein during the depositing metal from the metal ions in the features,
- 3 the deposition on the bottom is greater than the deposition on the walls.
- 1 16. The computer readable medium of claim 11, wherein the method is performed
- 2 within an electrolyte solution.
- 1 17. The computer readable medium of claim 11, wherein the applying the voltage to the
- 2 plating surface to increase the concentration of metal ions is sufficient to attract ions to
- 3 proximate the plating surface.



- 1 18. The computer readable medium of claim 11, wherein the feature comprises at least
- 2 one from the list of trenches and vias.
- 1 19. The computer readable medium of claim 11, wherein the voltage is applied for less
- 2 than five seconds.
- 1 20. The computer readable medium of claim 11, wherein the voltage is within the range
- 2 of 2 to 10 volts.
- 1 21. The computer readable medium of claim 20, wherein the voltage is 5 volts.
- 1 22. An apparatus that deposits metal on a plating surface of an object immersed in an
- 2 electrolyte solution prior to bulk deposition on the plating surface, the apparatus
- 3 comprising:
- a voltage biasing device coupled from an anode to the plating surface, the voltage
- 5 biasing device enhances the concentration of metal ions in electrolyte solution contained
- 6 in a feature on the plating surface.
- 1 23. The apparatus of claim 22, wherein the plating surface is immersed within said
- 2 electrolyte solution when the concentration of metal ions contained in the feature is
- 3 enhanced.
- 1 24. The apparatus of claim 22 wherein the feature comprises at least one from the list
- 2 of trenches, contacts, and vias.
- 1 25. The apparatus of claim 22, further comprising a current biasing device that applies a
- 2 current from an anode to the plating surface to deposit metal from the metal ions in the
- feature, the current is applied prior to the bulk deposition.
- 1 26. The apparatus of claim 25, wherein the current applied by the current biasing device
- 2 is applied for a sufficient duration of substantially fill the feature.





- 2 wherein during the depositing metal from the metal from the features, the deposition
- 3 rate on the bottom is greater than the deposition on the walls.
- 1 28. The apparatus of claim 22, wherein the voltage biasing device applies the voltage for
- 2 less than five seconds.
- 1 29. The apparatus of claim 22, wherein the voltage biasing device applies the voltage
- 2 within the range of 2 to 10 volts.
- 1 30. The apparatus of claim 29, wherein the voltage biasing device applies the voltage of
- 2 5 volts.
- 1 31. An apparatus that deposits metal on a plating surface of an object immersed in an
- 2 electrolyte solution prior to bulk deposition on the plating surface, the apparatus
- 3 comprising:
- 4 voltage biasing means coupled from an anode to the plating surface, the voltage
- 5 biasing means enhances the concentration of metal ions in electrolyte solution contained
- 6 in a feature on the plating surface.

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